



TRANEXAMIC ACID VERSUS ADRENALINE FOR IATROGENIC BLEEDING DURING FLEXIBLE BRONCHOSCOPY: A DOUBLE BLIND RANDOMIZED CONTROL TRIAL

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Objective:

Background: The most commonly used topical haemostatic agents during flexible bronchoscopy (FB) are cold saline and adrenaline. Although widely used for bleeding control in trauma and surgery, data supporting the use of tranexamic acid (TXA) for endobronchial bleeding are limited to small trials. Our aim was to compare the efficacy of topical TXA versus adrenaline in controlling iatrogenic bleeding during FB.



Methods: we conducted a cluster-randomized, double blind, single centre trial in a tertiary teaching hospital. Following haemostasis failure after 3 applications of cold saline (4°C, 5ml), patients were randomized to receive up to 3 applications of TXA (100mg, 2ml) or adrenaline (0.2mg, 2ml). If bleeding persisted, crossover was allowed (for up to 3 further applications) before proceeding with other interventions. Bleeding severity was graded by the bronchoscopist using a visual analogue scale (VAS; 1 - very mild, 10 - severe).

Results: During the study period 2033 FB were performed with 575 bleeding episodes (mean VAS 3.6 ± 1.3). Bleeding was stopped with cold saline in 432 patients (75.1%). A total of 142 patients were randomized to adrenaline (N=67) or TXA (N=75), and after excluding 12 patients for protocol violation, 130 patients were included in the final analysis. There was no difference in the bleeding control rate between the groups - bleeding was stopped in 83.1% (54/65) and 83.1% (54/65) patients receiving adrenaline or TXA, respectively ($p=1$). The severity of bleeding and number of applications needed for bleeding control (N) were similar in both groups (adrenaline mean VAS = 4.9 ± 1.3 , N = 1.8 ± 0.8 ; TXA mean VAS = 5.3 ± 1.4 , N = 1.8 ± 0.8). Both adrenaline and TXA were significantly more successful in controlling moderate bleeding than severe bleeding ($p=0.008$ and $p=0.012$, respectively), and required more applications for severe bleeding control ($p=0.006$ and $p=0.002$, respectively). There were no drug related adverse events out of the 5 adverse events that occurred in randomized patients (3 in the adrenaline and 2 in the TXA group, respectively).

Conclusion: We found no significant difference between adrenaline and TXA for controlling iatrogenic endobronchial bleeding. Our results add to the body of evidence that topical TXA could be used safely and effectively during FB, providing an important additional therapeutic option, especially for situations where adrenaline raises safety concerns.



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